

CLAIMS

What is claimed is:

1 1. A method of creating a packet using a digital signal processor, the method comprising
2 the steps of:

3 receiving call set-up information;

4 receiving call data;

5 creating a data portion of the packet using the call data;

6 creating one or more headers using the call data and the call set-up information; and

7 creating the packet by attaching the one or more headers to the data portion of the
8 packet.

1 2. The method as recited in claim 1, further comprising the step of updating at least one
2 of the headers based on a change in the call data or network topology.

1 3. The method as recited in claim 1, further comprising the step of transmitting the
2 packet to a switch fabric.

1 4. The method as recited in claim 1, wherein the one or more headers comprise a real
2 time transport protocol header.

1 5. The method as recited in claim 4, wherein the real time transport protocol header is
2 determined by the call data.

1 6. The method as recited in claim 1, wherein the one or more headers comprise a user
2 datagram protocol header.

1 7. The method as recited in claim 6, wherein the user datagram protocol header is
2 determined by the call data.

1 8. The method as recited in claim 1, wherein the one or more headers comprise an
2 Internet protocol header.

1 9. The method as recited in claim 8, wherein the Internet protocol header is created from
2 the call set-up information.

1 10. The method as recited in claim 1, wherein the one or more headers comprise a media
2 access control header.

1 11. The method as recited in claim 10, wherein the media access control header is created
2 from the call set-up information.

1 12. The method as recited in claim 1, wherein the step of creating a data portion of the
2 packet using the call data comprises the steps of:

3 compressing the call data;

4 creating one or more digital samples from the compressed call data; and

5 creating the data portion of the packet using the one or more digital samples.

- 1 13. The method as recited in claim 1, further comprising the steps of:
- 2 requesting an overlay based on the call set-up information; and
- 3 receiving and loading the overlay.

1 14. An apparatus comprising:
2 an array of digital signal processors;
3 each digital signal processor programmed to receive call set-up information, receive
4 call data, create a data portion of a packet using the call data, create one or more headers
5 using the call data and the call set-up information, and create the packet by attaching the one
6 or more headers to the data portion of the packet.

1 15. The apparatus as recited in claim 14, wherein the one or more headers comprise a real
2 time transport protocol header.

1 16. The apparatus as recited in claim 15, wherein the real time transport protocol header
2 is determined by call data.

1 17. The apparatus as recited in claim 14, wherein the one or more headers comprise a
2 user datagram protocol header.

1 18. The apparatus as recited in claim 17, wherein the user datagram protocol header is
2 determined by the call data.

1 19. The apparatus as recited in claim 14, wherein the one or more headers comprise an
2 Internet protocol header.

1 20. The apparatus as recited in claim 19, wherein the Internet protocol header is created
2 from the call set-up information.

1 21. The apparatus as recited in claim 14, wherein the one or more headers comprise a
2 media access control header.

1 22. The apparatus as recited in claim 21, wherein the media access control header is
2 created from the call set-up information.

1 23. The apparatus as recited in claim 14, wherein each digital signal processor creates a
2 data portion of the packet using the call data by compressing the call data, creating one or
3 more digital samples from the compressed call data, and creating the data portion of the
4 packet using the one or more digital samples.

1 24. The apparatus as recited in claim 14, wherein each digital signal processor is further
2 programmed to request an overlay based on the call set-up information, and receive and load
3 the overlay.

1 25. The apparatus as recited in claim 14, wherein each digital signal processor is further
2 programmed to update at least one of the headers based on a change in the call data or
3 network topology.

1 26. A communications switch comprising:

2 one or more cards having ingress, signal processing and egress functions, wherein the

3 signal processing function comprises one or more arrays of digital signal processors, each

4 digital signal processor programmed to receive call set-up information, receive call data,

5 create a data portion of a packet using the call data, create one or more headers using the call

6 data and the call set-up information, and create the packet by attaching the one or more

7 headers to the data portion of the packet;

8 one or more control cards containing one or more processors;

9 a switch fabric communicably coupling the one or more cards and the control cards;

10 and

11 a TDM bus communicably coupling the one or more cards and the control cards.

1 27. The communications switch as recited in claim 26, wherein one or more ingress cards

2 communicably coupled to the switch fabric and the TDM bus provide the ingress function of

3 the one or more cards.

1 28. The communications switch as recited in claim 26, wherein one or more egress cards

2 communicably coupled to the switch fabric and the TDM bus provide the egress function of

3 the one or more cards.

1 29. The communications switch as recited in claim 26, wherein one or more signal

2 processing cards communicably coupled to the switch fabric and the TDM bus provide the

3 signal processing function of the one or more cards.

1 30. The communications switch as recited in claim 26, wherein each digital signal
2 processor is further programmed to request an overlay based on the call set-up information,
3 and receive and load the overlay.

1 31. The communications switch as recited in claim 26, wherein the one or more headers
2 comprise a real time transport protocol header.

1 32. The communications switch as recited in claim 31, wherein the real time transport
2 protocol header is determined by the call data.

1 33. The communications switch as recited in claim 26, wherein the one or more headers
2 comprise a user datagram protocol header.

1 34. The communications switch as recited in claim 33, wherein the user datagram
2 protocol header is determined by the call data.

1 35. The communications switch as recited in claim 26, wherein the one or more headers
2 comprise an Internet protocol header.

1 36. The communications switch as recited in claim 31, wherein the Internet protocol
2 header is created from the call set-up information.

1 37. The communications switch as recited in claim 26, wherein the one or more headers
2 comprise a media access control header.

1 38. The communications switch as recited in claim 33, wherein the media access control
2 header is created from the call set-up information.

1 39. The communications switch as recited in claim 26, wherein each digital signal
2 processor creates a data portion of the packet using the call data by compressing the call data,
3 creating one or more digital samples from the compressed call data, and creating the data
4 portion of the packet using the one or more digital samples.

1 40. The communications switch as recited in claim 26, wherein each digital signal
2 processor updates at least one of the headers based on a change in the call data or network
3 topology.